

MAGNETIC RANDOM ACCESS MEMORY HAVING A TRANSISTOR OF VERTICAL STRUCTURE AND THE METHOD THEREOF

Abstract of the Disclosure

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A magnetic random access memory (MRAM) having a vertical structure transistor has the characteristics of faster access time than SRAM, high density as with DRAM, and non-volatility like a flash memory device. The MRAM has a vertical structure transistor, a first word line including the transistor, a contact line
10 connected to the transistor, a magnetic tunnel junction (MTJ) cell deposited on the contact line, a bit line deposited on the MTJ cell, and a second word line deposited on the bit line at the position of MTJ cell. With the disclosed structure, it is possible to improve the integration density of a semiconductor device, to increase the short channel effect, and to improve the control rate of the resistance, while using a
15 simplified manufacturing process.